

## Background information on CycleNetXChange

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## **Overview**

### **What is CycleNetXChange for?**

CycleNetXChange provides a standard format with which to exchange cycle path data, together with information about the quality of routes; this enables computerised transport systems to provide cycle routes.

### **The CycleNetXChange XML Schema**

CycleNetXChange data is described by an XML Schema. This can be used to describe CycleNetXChange data when exchanging it between systems as XML documents.

### **The CycleNetXChange UML Models**

The CycleNetXChange data conforms to a family of consistent, interlocking data models. The models are described in the CycleNetXChange Schema Guide in UML notation.

### **How do I obtain CycleNetXChange data?**

The CycleNetXChange data for England and Wales can be downloaded from <http://data.gov.uk/dataset/cycle-routes>.

## Documentation

The following documentation about CycleNetXChange is available free:

- This CycleNetXChange site provides a brief overview on the purpose of CycleNetXChange, and information on the available schema versions and where they can be found.
- CycleNetXChange **Schema Guide**: An electronic document providing a high level guide to CycleNetXChange and its use. The guide has content suitable variously for both users and implementers.
  - The latest version can be downloaded from the CycleNetXChange home page.
  - Further documentation about ITN can be found at the [Ordnance Survey site](#).
- **CycleNetXChange Schemas**: the CycleNetXChange XML Schema defines the data format for exchanging cycle path data. The schemas are written to be as readable as possible: they use meaningful names for elements, consistent conventions to make the schemas easier to read, and contain detailed comments describing the elements and their intended use.
- **Documentation for Related Standards**: CycleNetXChange is based on the Ordnance Survey ITN model.
- **Licensing & IPR**: The CycleNetXChange schema and data are available free under the Open Government Licence. Details of ITN licencing can be found at the [Ordnance Survey site](#).

## Examples

Two examples are available for CycleNetXChange

- A basic ['Hand-made'](#) example of CycleNetXChange data showing fiction data for very small route. This example is syntactically correct but not otherwise realistic.
- [Oxford City Cycle guides example](#) of some CycleNetXChange data from an actual project for Oxford. This is produced courtesy of Cycle City guides as part of the Cycle Journey Planner Project. Please note the data is provided 'as is' as an example only, and the DfT is not responsible for the accuracy or correctness of the data.

## Versioning

CycleNetXChange uses a systematic versioning scheme in line with GovTalk & e-Gif standards. The system is intended to allow you to design applications that operate at different schema levels concurrently, and to manage future schema application evolution in a rigorous and orderly manner.

Both schemas & instance documents are versioned.

## Version Numbering

### 1.1 Version Numbers

All CycleNetXChange schemas have a version Identifier of the form N.Mx, where:

- N indicates a **Major release**, e.g. "2.0". A major release is usually is not strictly compatible with the previous release.
- M indicates a **Minor release**, e.g. "2.1". A minor release is compatible with the previous release, providing any new optional features added in the release are not used
- x indicates an **Unapproved draft**, e.g. "1.0a", "4.3a". A letter suffix indicates that the release is not yet officially approved or released.

## Version Location

### 2.1 Schema versions

CycleNetXChange schema versions are always located at a specific, versioned URL. The URL has the general form:

- `//www.CycleNetXChange.org.uk/schema/N.M/cycleNet.xsd`

## Examples.

*Version 1.1 of CycleNetXChange:*

- `//www.CycleNetXChange.org.uk/schema/1.1/cycleNet.xsd`

*Draft of Version 1.2 of CycleNet:*

- `//www.CycleNetXChange.org.uk/schema/1.2a/cycleNet.xsd`

### 2.2 Namespace versions

Note that the namespace used for CycleNet is not itself versioned, in line with GovTalk & e-Gif standards, thus:

`<xs:schema targetNamespace="http://www.CycleNetXChange.org.uk/cnm/"`

## 2.3 Directory Structure

Artefacts are organised into a hierarchical directory structure relative to the root domain, in accordance with the e-Gif versioning system. For example the directory structure used is as follows:

```
//www.CycleNetXChange.org.uk/  
//www.CycleNetXChange.org.uk/schema/  
...  
//www.CycleNetXChange.org.uk/schema/2.1/  
//www.CycleNetXChange.org.uk/schema/2.1/cycleNet.xsd  
//www.CycleNetXChange.org.uk/schema/2.0/  
//www.CycleNetXChange.org.uk/schema/2.0/CycleNetXChange.xsd  
//www.CycleNetXChange.org.uk/schema/2.0/cnm/cnmBasic-v1-1.xsd  
//www.CycleNetXChange.org.uk/schema/2.0/cnm/cnmMore....  
....
```

## 3. Version Identifiers

### 3.1 Schema Version Identifiers

All CycleNetXChange schema versions have a formal version identifier in the header element:

```
<xs: schema targetNamespace="http://www.CycleNetXChange.org.uk/cnm"  
xmlns="http://www.cyclenet.org.uk/cnm"  
xmlns:xs="http://www.w3.org/2001/XMLSchema"  
elementFormDefault="qualified"  
attributeFormDefault="unqualified"  
version="2.0"  
id="CycleNetXChange">  
...  

```

### 3.2 Document Version Identifiers

All CycleNetXChange documents have a version identifier which must be populated by the implementation to indicate the schema level against which the document validates.

```
<?xml version="1.0" encoding="UTF-8"?>  
< CycleNetXChange  
xmlns="http://www.CycleNetXChange.org.uk/cnm" xmlns:xsi="http://www.w3.org/2001/X  
MLSchema-  
instance" xsi:schemaLocation="http://www.CycleNetXChange.org.uk/schema/1.0/CycleNetX  
Change.xsd" CreationDateTime="2004-07-17T09:30:47-05:00" ModificationDateTime="2004-  
07-17T09:30:47-  
05:00" Modification="new" RevisionNumber="1" FileName="String" SchemaVersion="2.0" Loc  
ationSystem="Grid">  
<cnm:CycleNetXChange>
```

.....  
< /cm:CycleNetXChange>  
</CycleNetXChange>

### **3.3 Package versions**

Low level subschemas that are shared with other schemas and referenced by CycleNetXChange schemas are individually versioned within a subdirectory, for example /napt and /apd. Copies of the referenced subschemas are included in the download so that the schemas can be used offline. For example:

[//www.CycleNetXChange.org.uk/schema/2.0/cnm/cnmBasicTypes-v2-0.xsd](http://www.CycleNetXChange.org.uk/schema/2.0/cnm/cnmBasicTypes-v2-0.xsd)

## **Terms of use**

The purpose of this site is to enable the Public Sector, Industry and other interested parties to work together to develop and agree policies and standards for the exchange of cycle path information for transport information systems. It is also aimed at promoting the production and management of centrally agreed, freely available XML schema, supporting the public sector data interoperability requirements of the UK Government's e-government strategy.

## **Use of Schema and Data**

The CycleNetXChange Schema and data are available for free under the Open Government Licence.

## **Definitions**

Words used in these terms and conditions have the following meanings:

### **Schema**

An XML Schema consists of components such as type definitions and element declarations. These can be used to assess the validity of well-formed element information items (as defined in [XML-Infoset]), and furthermore may specify augmentations to those items and their descendants. This augmentation makes explicit information which may have been implicit in the original document, such as default values for attributes and elements and the types of element and attribute information items. The process of schema validation consists of determining whether an element information item satisfies the constraints embodied in the components of an XML Schema, and if so of adding any appropriate augmentations. For detail of schema definition please see XML Schema Part 1: Structures. Available at:

<http://www.w3.org/TR/2000/WD-xmlschema-1-20000407/>

### **Data**

CycleNetXChange data is a data set describing cycle paths and their attributes.



## **Contact**

For help or comments about the CycleNetXChange schema & Documentation, including content of this website, please contact: <mailto:pti.support@trapezegroup.co.uk>

## **Designated Owner**

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